



**BSR/ASHRAE Addendum b
to ANSI/ASHRAE Standard 62.1-2013**

Public Review Draft

**Proposed Addendum b to
Standard 62.1-2013, Ventilation for
Acceptable Indoor Air Quality**

**First Public Review (August 2014)
(Draft shows Proposed Changes to Current Standard)**

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(This foreword is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subject to public review or a consensus process. Unresolved objectors on informative material are not offered the right to appeal at ASHRAE or ANSI.)

FOREWORD

Responding to increasing interest in sustainability in existing buildings, ASHRAE Standard 62.1 is cited frequently as a criterion for evaluating ventilation systems in existing buildings. Examples include LEED-EBOM, ENERGY STAR, and bEQ. Some building categories such as K-12 schools and office buildings are frequently renovated and often have multiple zone systems that provide HVAC to similar space types.

Section 6 (including the ventilation rate procedure) of the standard was developed as a design standard. As such, Section 6 and Normative Appendix A have the complexity to allow for many complex system designs and airflow pathways.

The scope of the standard (Section 2.4) states in part that “the provisions of this standard are not intended to be applied retroactively when the standard is used as a mandatory regulation or code.”

For existing buildings, it may be difficult to apply the ventilation rate procedure (VRP), particularly for buildings with multiple-zone recirculating ventilation systems. This is because determination of some of the values needed to calculate ventilation rates may be difficult or impossible because required information is not available. An example is system ventilation efficiency (Ev), used in equation 6.2.5.4.

The proposed addendum provides an alternate path of compliance with Standard 62.1 that is needed by the marketplace for those situations where information required to determine system performance is unavailable or for smaller facilities with straightforward multiple zone applications.

[Note to Reviewers: This addendum makes proposed changes to the current standard. These changes are indicated in the text by underlining (for additions) and ~~strikethrough~~ (for deletions) except where the reviewer instructions specifically describe some other means of showing the changes. Only these changes to the current standard are open for review and comment at this time. Additional material is provided for context only and is not open for comment except as it relates to the proposed changes.]

Addendum b to 62.1-2013

Modify Section 6.2.5 as shown below.

6.2.5 Multiple-Zone Recirculating Systems. For ventilation systems wherein one or more air handlers supply a mixture of outdoor air and recirculated air to more than one ventilation zone, the outdoor air intake flow (V_{ot}) shall be determined in accordance with Sections 6.2.5.1 through 6.2.5.4, or in accordance with the Simplified Ventilation Rate Calculation described in Normative Appendix J for occupancies that are listed in Table J-1.

Re-label existing Informative Appendix J as Informative Appendix K. Add new Normative Appendix J as follows:

(This is a normative appendix and is part of the standard.)

NORMATIVE APPENDIX J

Simplified Ventilation Rate Calculation for Multiple-Zone Recirculating Systems serving only specified occupancy categories

J.1 Outdoor Air Intake. For multiple-zone recirculating systems serving only occupancy categories listed in Table J-1, the design system outdoor air intake flow (V_{ot}) shall be determined in accordance with Equation J.1. For all other systems, V_{ot} shall be calculated using Section 6.2.5.4.

$$V_{ot} = \sum_{\text{all zones}} (A_z \times R_s) \quad (\text{J.1})$$

where

A_z = zone floor area, the net occupiable floor area of the ventilation zone, ft^2 (m^2)

R_s = outdoor airflow rate required per unit area as determined from Table J.1

J.2 Zone Primary Airflow. For each zone, the minimum design system primary airflow shall be determined in accordance with equation J.2.

$$V_{pz} = A_z \times R_{pz} \quad (\text{J.2})$$

where

R_{pz} = minimum primary supply airflow rate required per unit area as determined from Table J-1. The minimum primary airflow rate is the minimum zone design airflow required for ventilation purposes.

TABLE J-1 Minimum Ventilation and Supply Airflow Rates

Occupancy Category	Design Occupancy Minimum Airflow		Minimum Primary Supply	
	Outdoor Air Rate R_s		Air Rate R_{pz}	
Educational Facilities	cfm/ft²	L/s·m²	cfm/ft²	L/s·m²
Classrooms (ages 5-8)	<u>0.65</u>	<u>0.33</u>	<u>1.12</u>	<u>0.56</u>
Classrooms (age 9 plus)	<u>0.82</u>	<u>0.41</u>	<u>1.41</u>	<u>0.71</u>
Computer lab	<u>0.65</u>	<u>0.33</u>	<u>1.12</u>	<u>0.56</u>
Media center	<u>0.65</u>	<u>0.33</u>	<u>1.12</u>	<u>0.56</u>
Music/theater/dance	<u>0.72</u>	<u>0.36</u>	<u>1.24</u>	<u>0.62</u>
Multi-use assembly	<u>1.42</u>	<u>0.71</u>	<u>2.45</u>	<u>1.22</u>
General				
Conference/meeting	<u>0.44</u>	<u>0.22</u>	<u>0.76</u>	<u>0.38</u>
Corridors	<u>0.11</u>	<u>0.06</u>	<u>0.19</u>	<u>0.10</u>
Office Buildings				
Breakrooms	<u>0.65</u>	<u>0.33</u>	<u>1.12</u>	<u>0.56</u>
Main entry lobbies	<u>0.19</u>	<u>0.10</u>	<u>0.33</u>	<u>0.16</u>
Occupiable storage rooms for dry materials	<u>0.12</u>	<u>0.06</u>	<u>0.21</u>	<u>0.10</u>
Office space	<u>0.15</u>	<u>0.08</u>	<u>0.26</u>	<u>0.13</u>
Reception areas	<u>0.37</u>	<u>0.19</u>	<u>0.64</u>	<u>0.32</u>
Telephone/data entry	<u>0.63</u>	<u>0.32</u>	<u>1.09</u>	<u>0.54</u>
Public Assembly Spaces				
Libraries	<u>0.30</u>	<u>0.15</u>	<u>0.52</u>	<u>0.26</u>

J.3 Minimum Airflows with Demand Control Ventilation. For a multiple zone system that has a demand control ventilation system designed in accordance with Section 6.2.7.1, the following minimum airflows are required. When the zone is unoccupied during scheduled building occupancy, the zone outdoor air flow (V_{oz}) shall be no less than that calculated by Equation J.3 and the zone primary airflow V_{pz} shall be no less than calculated by Equation J.4.

$$V_{oz} = A_z \times R_{smin} \quad (\text{J.3})$$

where

R_{smin} = outdoor airflow rate required per unit area as determined from Table J.2

$$V_{pz} = A_z \times R_{pzmin} \quad (\text{J.4})$$

where

R_{pzmin} = primary supply airflow rate required per unit area as determined from Table J.2

TABLE J-2 Minimum Ventilation and Supply Airflow Rates for Unoccupied Zones

Occupancy Category	Design DCV Zone Minimum Airflow			
	Outdoor Air Rate R_{smin}		Primary Supply Air Rate R_{pzmin}	
	<u>cfm/ft²</u>	<u>L/s·m²</u>	<u>cfm/ft²</u>	<u>L/s·m²</u>
Educational Facilities				
Classrooms (ages 5–8)	<u>0.21</u>	<u>0.11</u>	<u>0.36</u>	<u>0.18</u>
Classrooms (age 9 plus)	<u>0.21</u>	<u>0.11</u>	<u>0.36</u>	<u>0.18</u>
Computer lab	<u>0.21</u>	<u>0.11</u>	<u>0.36</u>	<u>0.18</u>
Media center	<u>0.21</u>	<u>0.11</u>	<u>0.36</u>	<u>0.18</u>
Music/theater/dance	<u>0.11</u>	<u>0.05</u>	<u>0.18</u>	<u>0.09</u>
Multi-use assembly	<u>0.11</u>	<u>0.05</u>	<u>0.18</u>	<u>0.09</u>
General				
Conference/meeting	<u>0.11</u>	<u>0.05</u>	<u>0.18</u>	<u>0.09</u>
Corridors	<u>0.11</u>	<u>0.05</u>	<u>0.18</u>	<u>0.09</u>
Office Buildings				
Breakrooms	<u>0.21</u>	<u>0.11</u>	<u>0.36</u>	<u>0.18</u>
Main entry lobbies	<u>0.11</u>	<u>0.05</u>	<u>0.18</u>	<u>0.09</u>
Occupiable storage rooms for dry materials	<u>0.11</u>	<u>0.05</u>	<u>0.18</u>	<u>0.09</u>
Office space	<u>0.11</u>	<u>0.05</u>	<u>0.18</u>	<u>0.09</u>
Reception areas	<u>0.11</u>	<u>0.05</u>	<u>0.18</u>	<u>0.09</u>
Telephone/data entry	<u>0.11</u>	<u>0.05</u>	<u>0.18</u>	<u>0.09</u>
Public Assembly Spaces				
Libraries	<u>0.21</u>	<u>0.11</u>	<u>0.36</u>	<u>0.18</u>